

1 REMARKS

2 Process is that of "creating" acid at a point where reaction may be carried forward
3 without stable intermediaries formed.

4 Prior art fails to suggest this or to provide a for this. What the prior art does suggest is a
5 method of making a stable intermediary which must be pyrolyzed in order to react with wood
6 cellulose.

7 The present invention is not one where the prior art suggests that it would be obvious to
8 create acid in the wood. The present invention is a process as a whole is unique even though
9 some of the chemicals previously were used in the prior art but are not utilized in the same
10 fashion.

11 The method of using an acid reactant generated when applied to the wood is not obvious
12 from prior art suggesting similar reactants but different reactantions which neither claim the acid
13 reactant nor the resulting compounds. In re Ochiai, 71 F3d 1565, 37 USPT 2d 1127 (CAC
14 1995).

15 The absence of a known or an obvious process for carrying out the reaction which prior
16 knowledge is rebutted with the Nair affidavit as well as the test results should be adequate to
17 overcome any presumption of obviousness. See In Re Hoeksema, 399 F2d 269, 158 USPT 596,
18 55 CCPA 1493 (CCPA 1968).

19 There has to be some indication that those skilled in the art would have found it obvious
20 not only to have available the chemicals in this reaction, but to use them in a combination of the
21 type which is taught in the instant patent and also that they would have expected or known to get

1 a reaction with the same properties and characteristics which is clearly not the case. In Re Willis,
2 445 F2d 1060,172 USPQ 667 (CCPA 1972).

3 This is not a case where the combination of ingredients to an obvious development. The
4 prior art suggestions failed to prompt for the substitution of a substance generating the acid only
5 upon application to the wood (Nair Affidavit). Instead, the material substitution are inconsistent
6 with the suggestions in the art and provide greatly improved results because the prior art never
7 attempted to carry out the reaction which is carried out in the instant invention. To try to say that
8 because in completely different experiments, an attempt was made to obtain a similar reaction
9 (albeit unsuccessfully or inefficiently) should not permit the examiner to then say that in an
10 experiment where the same reaction was not attempted the fact that similar ingredients were
11 mentioned somehow allows for a combination of the two dissimilar prior arts.

12 In Re Grasselli, 713 F2d 731, 218 USPQ 69 (CA 1983), In Re Taborsky, 502 F2d 775, 183
13 USPQ 50 (CCPA 1974).

14 This is not a case where it was suggested to substitute one material for another and
15 instead the entire process being carried out is chemically dissimilar as shown by the affidavit
16 which have been filed herewith. (Nair Affidavit)

17 Unlike the suggested experimentation with known additives, this is a new combination
18 which produces a result which is not suggested by the prior art and therefore is not obvious.
19 Claims have been amended in order to be narrowly construed relative to the makeup of the active
20 ingredients. See Union Carbide Corp. V. Dow Chemical Company, 682 F2d 1136, 217 USPQ
21 1195 (CA 5 Tex 1982).

1 The critical proportions taught in some of the claims herein involve something beyond
2 that which is obvious to the worker skilled in the art since the skilled worker in the art would not
3 even attempt a reaction of the type which is taught herein since there is no reaction of the type
4 taught here suggested by the prior art in question. In Re Gillette, 30 CCPA 900, 133 F2d 910, 56
5 USPQ 530 (CCPA 1943).

6 The prior art cited is the Saka case. As covered by the earlier affidavits and the new
7 affidavit attached hereto, the Saka disclosure does not tell how to use the chemicals which are
8 used in the present specification in order to get a reaction of the type which is disclosed in this
9 invention.

10 The examiner has stated that the disclosure in Saka is not adequately recognized in the
11 present patent, but the examiner has failed to show specific language in Saka that does anything
12 more than suggest that acids may be used to catalyze a different reaction (Nair Affidavit). This
13 has no meaning in this particular case because even though acids can catalyze any number of
14 different reactions, there is no prior art which teaches how to catalyze the reaction taught with
15 Kelsoe with any acid.

16 Saka deals with a completely different process that being the hydrolyzation of an
17 alkoxide. The process is carried out in a different way and the suggestion that an acid may
18 catalyze a reaction in Saka has very little or nothing to do with the reaction in the instant case
19 which is the substitution of silicone compounds onto the cellulose structures in place of hydroxyl
20 groups.

21 Saka requires pyrolysis in order to break up the stable intermediaries and obtain a similar
22 in efficient and result (Nair Affidavit).

1 The Saka process suggested (not adequately disclosed) is one of for creating stable
2 intermediaries by an acid catalyst. The present invention avoids this and uses acid from a heat
3 generating reaction in wood in order to begin and continue the reaction of silicon to cellulose.

4 The Kelsoe process is completely different and would not work with the formation of the
5 stable intermediaries.

6 The examiner effectively is inserting every step of the present invention into Saka up to
7 the inclusion of acid and then concludes that this is obvious just because acid is mentioned in
8 reference.

9 Effectively the examiner holds that to use acids to catalyze a completely unrelated
10 reaction renders the present invention obvious.

11 In any case, the use of the acid catalyst in the Saka invention is not expected to produce a
12 surprising result. In this case with a specific combination of chemicals applied to specific
13 methods, the catalyst actually functions to do something not suggested in Saka. Nor is there any
14 suggestion to combine the method taught in Saka with any other method to accomplish a
15 chemical substitution of the type taught by Kelsoe. The fact that Saka did not see this is proof
16 without the affidavit that it was not obvious.

17 Despite the failure of the prior art, the examiner continues to pull out this language and to
18 cite it in the abstract with nothing to tie it in with the prior art or to make it render the prior art
19 similar to the process which the present specification teaches. The affidavit serves to rebut this.

20 The examiner should not hold that the mention of a catalyst in the prior art with
21 experiments which clearly by their own disclosure, fail to accomplish the result of the present

1 invention somehow can be stretched to be what it is not. Results have been presented using
2 experimental data. Attempting to obtain a catalyzed exothermic reaction using the prior art with
3 acid fails. A theoretical basis for this failure has been submitted in Nair (Nair Affidavit) It is
4 submitted that the examiner, while perhaps correct in requesting the additional affidavit which
5 are attached hereto, should not stretch the prior art far beyond the point where it is reasonable to
6 say that the prior art discloses using a catalyst creating an acid upon application to the wood.

7 This is a case where all the secondary indications indicate a non-obvious and novel result.
8 The only thing that the prior art shows is that this technology is novel and unobvious by the fact
9 that the prior technicians attempting to accomplish the similar reactions failed to accomplish one
10 which works in the same manner and with the efficiency of this reaction, failed to use the
11 chemical combinations in the claims to get a result as taught and always required pyrolysis to set
12 an end result.

13 The claims in this case have been amended to show that one step is not only the use of an
14 acid generating catalyst but also to include the step of "creating an acid within the wood by
15 reaction of a chemical producing an acid within the wood when introduced into the wood".

16 In order to determine the difference between the present invention which creates an acid
17 upon exposure to the wood, it is necessary to observe why the present invention works
18 exothermically as opposed to the prior art which suggests the addition of an acid to the solution
19 in order to catalyze the hydrolysis reaction.

20 The hydrolysis reaction which is shown in the prior art (Nair Affidavit) does nothing to
21 further the reaction but instead creates another stable intermediary which stable intermediary will

1 not readily react to the wood in the absence of pyrolysis or an extremely high heat which is both
2 expensive and inefficient in terms of the amount of reaction (Nair Affidavit). To some extent it
3 is questionable as to whether the reaction is effective at all, based on the experimental results
4 which showed that there was continued leaching after the pyrolysis reaction.(Potts Affidavit,
5 Saka)

6 In contrast, the Kelsoe technology by creating unstable reactants within the wood, skips
7 the state of stable intermediaries and hence allows for the reaction with the wood cellulose to
8 occur both spontaneously and sequentially. (Nair Affidavit)

9 The hydrolysis with an acid taught in the prior art is counterproductive to this and in fact
10 defeats the very reaction which by generating stable intermediaries the Kelsoe patents seeks to
11 perform. (Nair Affidavit)

12 While conceivably there might be some way to maintain the Saka intermediaries as
13 unstable and while future patents should certainly cover the issue of reacting unstable
14 intermediaries having the basic chemical composition as set forth hereinabove for the reactants,
15 the present invention defines this in terms of the most practical method of creating the unstable
16 intermediaries in the wood which has nothing to do with adding an acid to a solution to perform
17 unnecessary hydrolysis which is the suggestion of the prior art.

18 It would be impossible to stretch the prior art to suggest that they add a reactant which
19 creates an acid upon application to the wood given the fact that there is absolutely no suggestion
20 of that type of technology in the prior art, and the prior art fails to achieve a result in any way
21 suggestive of the type of reaction which is occurring in the Kelsoe technology.

1 The prior art in this case does not teach the creation of an acid upon entry in the wood,
2 but only teaches the use of acid catalysts and the like to perform a hydrolysis reaction.

3 As discussed in the affidavit, the use of these acids will do nothing more but create a
4 stable intermediaries which would prevent the very type of reaction which is taught in the Kelsoe
5 case, absent pyrolysis. (Potts Affidavit, Nair Affidavit)

6 Hypothetically, it might be that the initial reaction of the acid generator avoids the stable
7 intermediary and thereafter generates a sufficient amount of heat in order to continue the drive of
8 the reactions which would otherwise result in stable intermediaries, but under any circumstance
9 whatever the chemistry, the result is one which is never suggested by the prior art and in order to
10 anticipate, "all elements of the invention or of the equivalence must be found in the single
11 description or structure, where they do substantially do the same work in substantially the same
12 way". Marasco v Compo Shoe Machinery Corp., 325 F2d 395, 140 USPQ 147 (1963, CA1
13 Mass); Bain v M.A. Hanna Co., 331 F2d 974, 141 USPQ 559 (1964, CA6 Mich); Monroe Auto
14 Equipment Co. v Heckethorn Mfg. & Supply Co., 332 F2d 406, 141 USPQ 549 (1964, CA6
15 Tenn). Greening Nursery Co. V J & R Tool & Mfg. Co., 376 F2d 738, 153 USPQ 660 (1967,
16 CA8 Iowa); Metal Arts Co. V Fuller Co., 389 F2d 319, 156 USPQ 605 (1968, CA5 Tex);
17 Scaramucci v Dresser Industries, Inc., 427 F2d 1309, 165 USPQ 759 (1970, CA10 Okla); Illinois
18 Tool Works, Inc. V. Sweetheart Plastics, Inc., 436 F2d 1180, 168 USPQ 451 (1971, CA7);
19 Straussler v United States, 168 Ct Cl 852, 339 F2d 670, 143 USPQ 443 (1964); Jeanotte v
20 Morrill Adams Co., 38 F2d 884 (1930, DC Me); Union Simplex Train Control Co. V General R.
21 Signal Co., 11 F Supp 854 (1935, DC NY); McLemore v Southern Implement Mfg. Co., 227 F
22 Supp 272, 141 USPQ 7 (1964, ND Miss); H.K. Porter Co. V Gates Rubber Co., 187 USPQ 692

1 (1975 DC Dist Col).

2 In this case, the suggestion of the use of an acid for hydrolysis is not suggestive to
3 generate an acid upon exposure to wood in the present invention and even if it would stretch to
4 cover that, it was never seen in the prior art, nor was it any way suggested in the prior art that,
5 you could change the chemicals and the process to the what is present in Kelsoe and drive this
6 self initiating reaction. The prior art fails to solve the problems, fails to achieve the result and
7 therefore cannot anticipate the subsequent patent by Kelsoe which successfully solves the
8 problem of how to drive this reaction without pyrolysis. Dowless v Hooks, 125 F Supp 96, 102
9 USPQ 386 (1954, DC NC).

10 While not specifically rejected on the basis of 35 U.S.C.103 a discussion of how that
11 applies is also educational.

12 The use of an acid reactant patented by the applicant is not obvious when the prior art
13 suggests similar reactions with different acid reactants. Here a similar reaction is not suggested.
14 The result of Saka is to prevent a similar reaction. While it is alleged that the prior art is not
15 specific enough to indicate the types of acids even when limited to strong acids, in this case,
16 neither the claimed acid reactant nor the resulting reaction are suggested by the art. In re Ochiai,
17 71 F3d 1565, 37 USPQ2d 1127 (CA FC 1995).

18 It is to be noted that there is considerable evidence available under modern technology
19 which fails to show that the prior art processes produces the same catalyst as claimed in the
20 patent and therefore fails to anticipate it. Considerable evidence available under modern
21 technology failing to show that prior art polymerization process produced the same catalyst as
22 claimed in this patent fails to anticipate. Studiengesellschaft Kohle mbH v Dart Industries, Inc.

1 549 F supp 716, 216 USPQ 381 (1982, DC Del), affd 726 F3d 724, 220 USPQ 841 (1984, CA).

2 A broad suggestion of an acid being used to catalyze a different reaction is hardly
3 significant in this case. In a similar case, a prior art suggestion of oxidation by alkaline chlorine
4 and mentioning hypobromite was not construable to suggest oxidation by an alkaline solution of
5 chlorine involving hypochlorite and therefore the reference did not anticipate the claimed process
6 achieving a higher yield using the hypochlorite. Prior art suggesting "oxidation by alkaline
7 chlorine or bromine solution" and mentioning hypobromite is not construable to suggest
8 oxidation by alkali solution of chlorine involving hypochlorite so that reference does not
9 anticipate claimed process achieving higher yield using hypochlorite. In re Application of Meyer,
10 599 F2d 1026, 202 USPQ 175 (1979, Cust & Pat App). The applicants process claims should be
11 allowed because the applicant teaches a definite step (generating an acid (particularly a strong
12 acid) upon application to wood and in quantities not disclosed in the prior art) to the prior art
13 does not teach which results in a distinctly different result in the cited patents. In re Kaplan, 110
14 F2d 670, 45 USPQ 175 (1940).

15 Incidental similarities are not enough to render the invention anticipated. There is not any
16 anticipation or any incidental similarities of the type envisioned since the Saka technology
17 indicates just the opposite. American Original Corp. v Jenkins Food Corp., 696 F2d 1053, 216
18 USPQ 945 (1982, CA4 Va).

19 35 U.S.C. §§ 103:

20 The use of an acid reactant patented by the applicant is not obvious from prior art
21 suggesting similar reaction but different acid reactants. While it's alleged that the prior art is not
22 specific enough to indicate the types of acids in this case neither the claimed acid reactant nor the

1 resulting reaction is suggested by the prior art. In re Ochiai, 71 F3d 1565, 37 USPQ 2d 1127 (CA
2 FC 1995).

3 While it is generally recognized that an acid may be used as a catalyst, where, as here, the
4 prior art fails to appreciate the ability of an acid generated on contact with the wood to make an
5 exothermic reaction without pyrolysis makes the claim on this discovery unobvious so that any
6 103 rejection and any 102 rejection is inappropriate. In re application of Herschler, 591 F2d 693,
7 200 USPQ 711 (CC PA 1979).

8 Nor is it sufficient to say that the chemicals in question inherently generate an acid on
9 contact with the wood and is used to produce the novel result taught in the patent would be
10 obvious. In re Henderson, 52 CC PA 1656, 348 F2d 550 146 USPQ 372 (CC PA 1965). In this
11 case, the invention is not the specific property of the defined compound, but is instead the use of
12 the defined compounds in a process wherein the activity of combined chemicals produces a new
13 and unobvious result. This improved and unexpected result overcomes the obviousness rejection.
14 In re Soni, 54 F3d 746, 34 USPQ 2d 1684 (CAFC 1985). In fact the unknown and substantially
15 greater effect in this was shown with laboratory tests wherein adding acids as described in the
16 prior art (Saka) was attempted without the creation of the acid on contact with the wood. This did
17 not and should not have created the Kelsoe reactions because the Saka modification produces
18 stable intermediaries which still must be pyrolyzed to react with wood. The substantially greater
19 effectiveness is adequate even if no new properties were shown in order to render the invention
20 patentable. In this case a new property and a different process is shown because of the use of the
21 catalyst is made to function on contact with the wood in order to generate an acid and a
22 consequent exothermic reaction different from Saka and without pyrolysis. In re Wiechert, 54

- 1 CC PA 957, 370 F2d 927, 152 USPQ 247 (CC PA 1967); Special Metals Corporation v.
- 2 Teledyne Inc., 215 USPQ 698 (WDNC 1982); Imperial Chemical Industries, PLC v. Henkel
- 3 Corp., 545 Supp 635 215 USPQ 314 (DCDEL 1982).



CONCLUSION

2 For all of the reasons advanced above, Applicant respectfully submits that the application
3 is in condition for allowance and that action is earnestly solicited.

4 A one month extension is requested and a fee for that has been paid.

5 The commissioner is hereby authorized to charge any additional fees which may be
6 required for this amendment, or credit any overpayment to Deposit Account 06-2129 in the name
7 of Gregory M. Friedlander.

8 In the event that an extension of time is required, or which may be required in addition to
9 that requested in a petition for an extension of time, the Commissioner is requested to grant a
10 petition for that extension of time which is required to make this response timely and is hereby
11 authorized to charge any fee for such an extension of time or credit any overpayment for an
12 extension of time to Deposit account 06-2129.

13 Respectfully submitted,

14
15 GREGORY M. FRIEDLANDER,
16 Registration No. 31,511
17 Gregory M. Friedlander & Associates, P.C.
18 11 South Florida Street
19 Mobile, Alabama 36606-1934
20 (251) 470-0303
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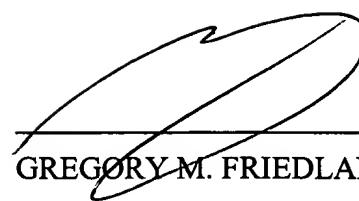
22 CERTIFICATE OF MAILING

23 I hereby certify that this correspondence is being deposited with the United State Postal
24 Service as Express Mail NO. EV 278558543 US in an envelope addressed to: Commissioner of
25 Patents and Trademarks, Mail Stop Non-Fee Amendment, Alexandra, VA 22313 on the 1st

1 day of July, 2004.

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GREGORY M. FRIEDLANDER



UNITED STATES DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

SERIAL NUMBER: 09/558,642

ART UNIT: 1762

FILING DATE: 06/20/2001

EXAMINER: Erma C. Cameron

APPLICANT: Kelsoe, Darrell W.

DATE OF OFFICE ACTION:

TITLE: Process For Treating Wood and
Products From Treated Wood

DATE OF RESPONSE: 07/01/2004

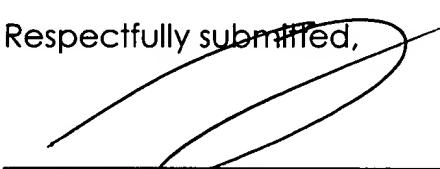
NOTICE OF FILING AFFIDAVIT

The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

COMES NOW, applicant Darrell Kelsoe, and in support of the above referenced patent application, hereby files the attached affidavits in support of the issue of patentability.

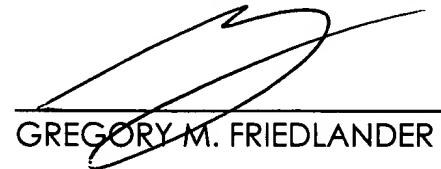
Respectfully submitted,



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CERTIFICATE OF MAILING

This message was sent via fax to Erma Cameron, fax number 703-872-9475
on the 1st day of July, 2004.


GREGORY M. FRIEDLANDER



Greg2001\MYDOCUMENTS\Clients\togreg\ToGreg\kelsoe nair affidavit April04.wpd

Serial Number	09/885,642
Filing date	06/20/01
Title	Process for Treating Wood and Products from treated Wood
Applicant	Darrell Kelsoe
Art Unit	1762

I, M. Gopal Nair respectfully submit the following responses in support of the above referenced Application. The concerns expressed by the Examiner in rejection of claims appear to be focused on the following issues:

1. a) What is exactly disclosed by the Saka document Number 8-318509? b) How does this disclosure different from Kelsoe in composition? c) Could the Kelsoe disclosure be expected from the Saka disclosure? d) How do the treatment methods and results of Saka disclosures differ from Kelsoe methods and results? and e) Does addition of an acid or a base to the composite mixture of Saka yield a formula obvious or anticipating the Kelsoe process?

RESPONSES

What is exactly disclosed by the Saka document Number 8-318509?

Saka discloses a “Composite Precursor” consisting of a mixture of:

Formula-1, represented by $M(OR)_n$, where M is a metal –OR is an alkoxide and n = the valence state of the metal. As an example let us take the closest compound to Kelsoe disclosure, that is tetramethoxysilane represented by the formula $Si(OCH_3)_4$.
(Saka Document: page-10; 0014; 0015)

Saka's second compound in the "Composite precursor" mixture consists of a formula represented by $R^1m\text{-Si(OR}^2\text{)}4\text{-m}$; where R^1 is a preferably fluorinated alkyl group. A typical example of such a compound will be, heptafluorobutyltrimethoxysilane (Saka Document: page-11; 0017;0018. page-12-0019)

a) How does this disclosure different from Kelsoe in composition?

Compound represented by Formula-1 of Saka disclosure is **not present** in Kelsoe formula. There is no metal alkoxide represented by $M\text{ (OR)}_n$ (eg. $\text{Si(OCH}_3\text{)}_4$) in the Kelsoe formula. The **Metal alkoxide** that is **absent** in Kelsoe formula is the **main ingredient** of Saka formula representing more than 99% of the composite precursor relative to 0.0001-0.5% (molar ratios) of formula -2. Saka's formula **does not contain** the crucial and essential methytrichlorosilane (up to 5%) represented by formula $R\text{-Si(Cl}_3\text{)}$ of the Kelsoe reaction mixture (not a precursor). Therefore the chemical composition of the treatment formulas (Saka Vs. Kelsoe) is distinctly different. This difference alone in my opinion should be sufficient to distinguish the technologies.

c) Could the Kelsoe disclosure be expected from the Saka disclosure?

It is impossible that the Kelsoe formula could have been anticipated from Saka's teaching to a skillful person practicing this art. Saka discloses a "Composite Precursor" consisting of a mixture of compounds, the **main ingredient** of which (the metal alkoxide) is **absent** in Kelsoe formula and more importantly the **crucial ingredient** (methytrichlorosilane) in Kelsoe formula is **absent** in Saka's mixture. Further more, the composition of the formula, the **treatment methods** and the **final results** are entirely different and unanticipated based on prior disclosures (please see below). The Kelsoe

formula was not foreseen despite it's significant benefits and is unexpected, new and novel with respect to Saka teaching.

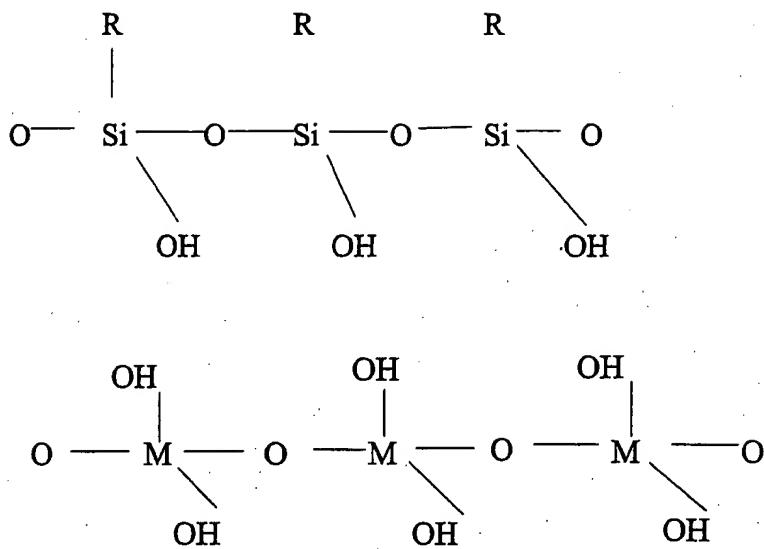
d) How do the treatment methods and results of Saka disclosures differ from Kelsoe methods and results?

Saka's Treatment methods as recited on pages 12-14, comprises of the following discrete steps:

1. The wood to be treated needs to be **humidified** to saturation, preferably 10-50% water by weight (Saka document: page-13; 0021, last but one line). (acetone extraction in a is required before humidification). This is an expensive procedure and very difficult to accomplish with large wooden blocks. Please note that Saka experiments were carried out using wood wafers of 1.00mm thickness only, as opposed to 1x1 inch thick raw wood blocks used for experiments by Kelsoe.
2. Immerse the said wood piece in a "metal alkoxide solution" (**not present in Kelsoe formula**) containing formula-2 (0.01%, optimal). Carry out impregnation of formula to wood also by applying reduced pressure or high pressure.
3. Dry the impregnated wood piece by application of external heat to 50-110 degrees for several hours (Saka Document: page 14, lines 5-6). **Only at this heating stage the alkoxide becomes hydrolyzed and polycondensed. If the impregnated wood piece is not Pyrolyzed by providing external heat, Saka's technology does not work.**
4. The heating of the impregnated metal alkoxide (that is absent in Kelsoe formula) results in hydrolysis aided by "humidified" water and heat (the role of miniscule quantities of formula-2 is unclear) whereby conversion of the said metal alkoxide to a metal oxide takes place. **This metal oxide that is generated by heating of the**

precursor formula (composite precursor) is NOT bonded to any molecular components of treated wood and is easily washed off ("easily solubilized and desorbed under the pervasion of water" Saka Document: page 14, lines 9-10). Saka further claims that the leakage of the metal oxide can be prevented by concomitant use of the hydrolysable alkoxysilyl-group containing organosilicon compound (presumably a compound represented by formula-2 up to a maximum of 0.5% relative to metal alkoxide); but Saka does not teach that the metal oxide can be bonded to wood molecules by this process.

Saka teaches that the heating process of humidified metal alkoxide impregnated wood can be carried out using an acid or base catalyst -----. He suggests that an acid or a base can be used to hydrolyze a metal alkoxide, represented by formula-1 ($M(OR)_n$) to a metal oxide. Specifically Saka teaches that a metal alkoxide (which is NOT present in the Kelsoe formula) that is impregnated in a humidified wood piece can be hydrolyzed to a metal oxide by pyrolysis (applying external heat) or the addition of an acid or base to catalyze the hydrolysis reaction. {Saka suggests the acid would be used to "hydrolyze" the metal alkoxide. Saka neither suggests nor shows the acid be sued to catalyze the "reaction" need to obtain bonding.} The resultant metal oxide is NOT bonded to any molecules of wood at all by this process. Therefore addition of acid to the composite mixture of Saka does not generate a reagent that is present in Kelsoe formula either outside the wood or within the wood. This shows the Saka acid creating stable intermediaries of the formula



e) Does addition of an acid or a base to the composite mixture of Saka yield a formula identical to Kelsoe teaching?

Saka's composite precursor mixture consists of greater than 99% of a metal alkoxide and up to 0.5% of formula-2 in a suitable solvent including alcohol.

If one adds a base to this mixture it will not generate a formula that reacts with wood molecule on contact. In fact addition of base to this mixture make it less reactive in presence of water to generate the envisioned metal oxide.

One has to use **external heating** to accomplish the formation of the metal oxide. If one adds acid to this composite precursor partial hydrolysis of the metal alkoxide **outside the wood** it will generate a still more complex and ill-defined formula containing formula-1, formula-2, and metal oxide. The acid will be completely consumed on addition and the impregnation mixture will consists of additional amount of metal oxide. One must consider the fact that generation of a

metal oxide and its subsequent heating to complete the process is **not envisioned** in the teaching of Kelsoe. The teaching of Kelsoe is the covalent bond formation between the hydroxyl groups of wood molecules with silicon up on contact. Therefore addition of acids, bases or metallic salts to the composite precursor mixture of Saka will not give a formula that is identical in operation, performance or composition to those taught by Kelsoe.

This vague suggestion in Saka does not suggest the process taught by Kelsoe, but is to suggest the generation of stable intermediaries as set out on (d) above.

Kelsoe Method of Treatment:

Since the Kelsoe formula reacts directly with wood hydroxyl groups to form permanent silicon-oxygen covalent bonds no humidification or preconditioning is necessary.

Process: Dip, brush or spray the Kelsoe formula to any wood block. Wait and a reaction occurs.

Result: A permanent silicon-oxygen bond is formed

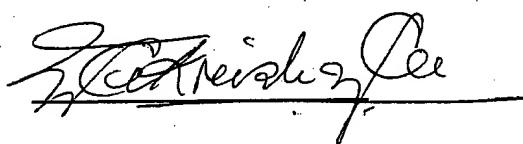
Conclusion: In the Kelsoe procedure one simply dips, brush or spray a new, novel and unexpected formula to any wood and results in permanent bonding of silicon to wood molecules imparting simultaneous hydrophobicity, insect resistance and fire retardency instantly and more completely within a few hours. No other cited prior art technology teaches this amazingly simple technology of formulation, treatment methods or results.

The chemical composition of the Kelsoe and Saka treatment formula is different and distinct, the methods of treatment are dramatically different

and the final results are different. I am of the opinion that if the composition of the treatment formula, methods of treatment and end results are different from previous teachings (as exemplified in the Saka vs. Kelsoe disclosures) in a Patent application, allowance should be granted.

Based on the above facts, I respectfully submit that the Kelsoe Patent be allowed.

Furthermore affiant sayeth not.

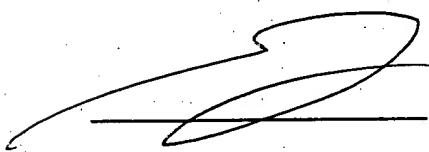


M. Gopal Nair, Ph. D

Professor

Sworn to and subscribed to before me the undersigned notary in said state and county

on this the 10 day of June, 2004.



Notary Public

My commission expires: 05-04-2008